

RM-2AC-IP

Installation and Operating Manual



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1 GENERAL SYSTEM DESCRIPTION

The RM-2AC-IP is a resource module in a metal enclosure with an environmental rating of IP65. This product can be used with the MS4800, F3SJ (PNP version only), OS3101, MS/OF4600, and PA4600. The RM-2AC-IP provides power for safety devices with solid-state safety outputs and converts the outputs of those devices to force-guided relay outputs. Two normally open (NO) and one normally closed (NC) safety relay outputs and two normally closed (NC)/normally open (NO) auxiliary relay outputs are provided. The two auxiliary outputs can be selected to accept NPN or PNP. Additionally, the RM-2AC-IP serves as a central point for terminating all signals to and from a solid-state safety device, including EDM (External Device Monitoring). The removable relay board facilitates installation and servicing.

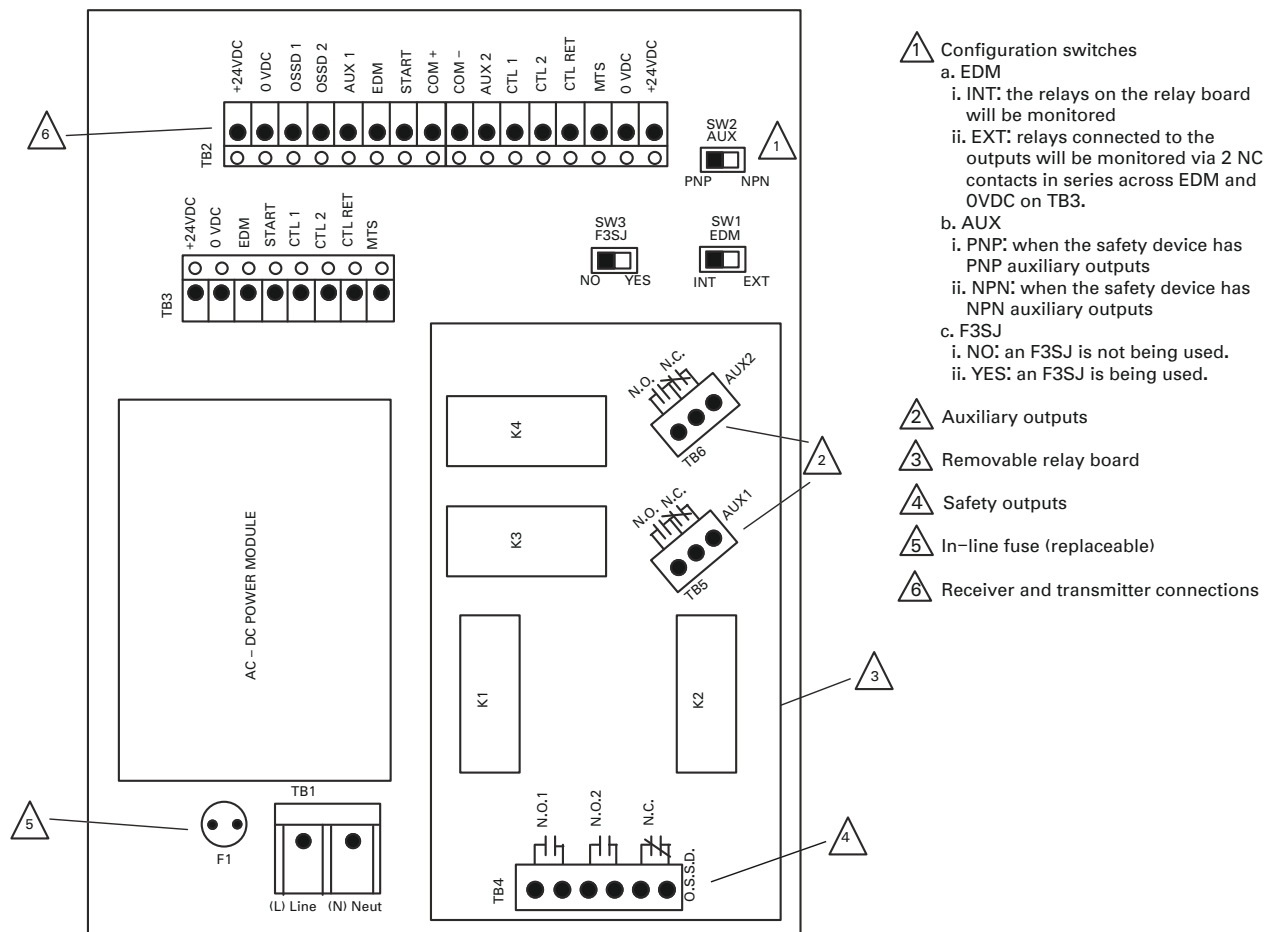


Figure 1-1 RM-2AC-IP Layout

2 INSTALLATION

2.1 INSTALLATION

WARNING! In order to ensure IP65 protection:

- Install cable strain relief (provided) at locations 1 and 2.
- Install the gasketed plastic plug (provided) at location 2, when using an OS3101 Laser Scanner.
- If locations 3, 4 and/or 5 are used, the user must provide IP65-rated cable strain reliefs.

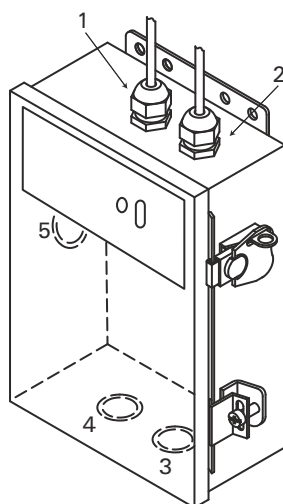


Figure 2-1 Cable Strain Reliefs

2.2 MINISAFE MS4800

There are three slide switches inside the RM-2AC-IP:

- EDM (SW1): select either internal (INT) or external (EXT). By default, this is set to INT. EDM must be enabled on the MS4800.
- AUX (SW2): The auxiliary output of the RM-2AC-IP needs to be configured based on the MS4800 being installed. If you are using the MS4800B or MS4800S, the AUX needs to be set to PNP. For an MS4800A, the auxiliary output could be either PNP or NPN, depending on your configuration.
- F3SJ (SW3): Make sure this switch is set to "NO".

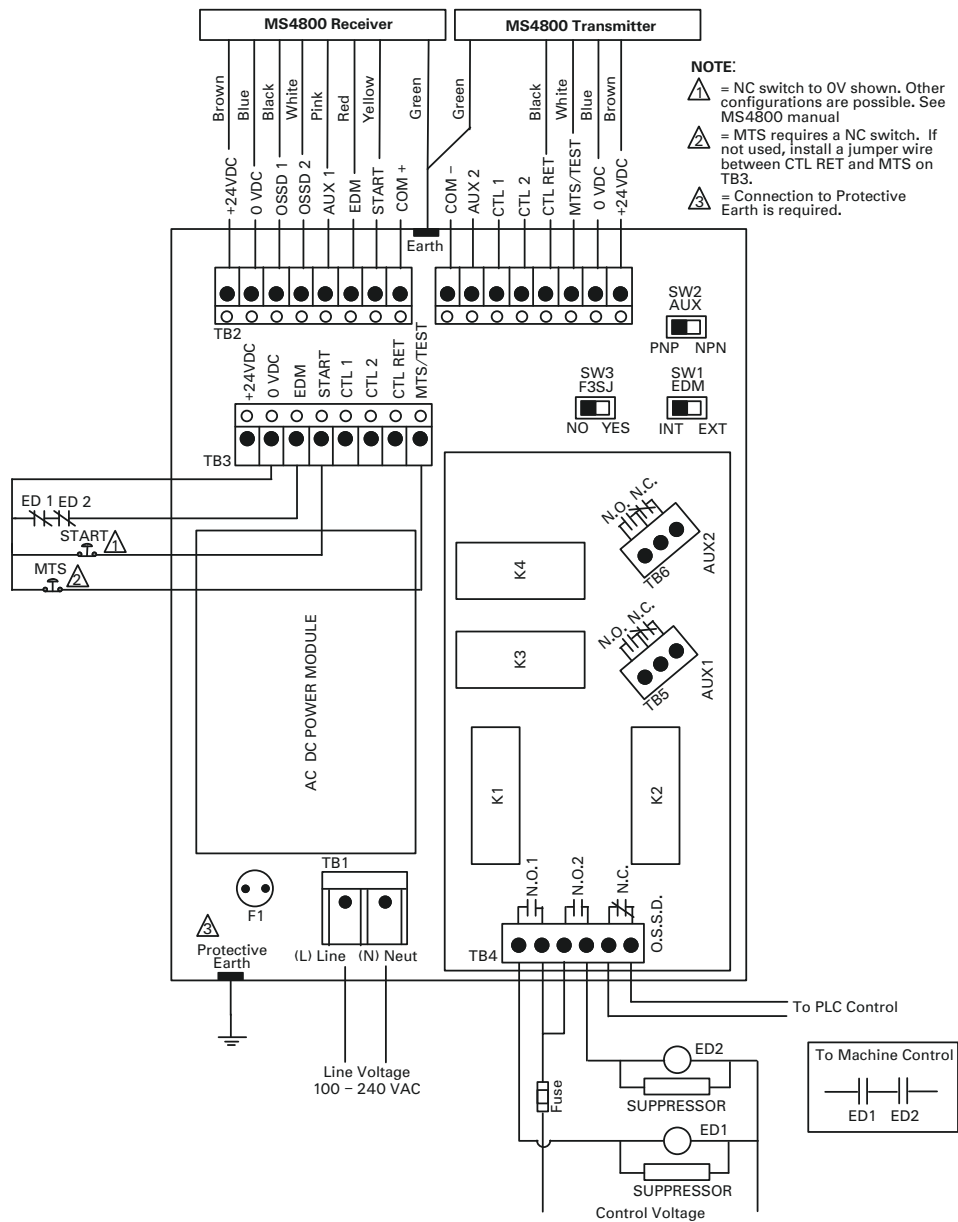


Figure 2-2 MS4800 Wiring Diagram

2.3 OPTOSHIELD OS3101

There are three slide switches inside the RM-2AC-IP:

- EDM (SW1): select either internal (INT) or external (EXT). By default, this is set to INT. EDM must be enabled on the OS3101.
- AUX (SW2): The Auxiliary output of the RM-2AC-IP needs to be configured based on the OS3101 being installed. Refer to the model number of OS3101. Look for the designation of either “NP” or “PN” in the model number. A “NP” refers to NPN and the “PN” refers to PNP output.
- F3SJ (SW3): Make sure this switch is set to “NO”.

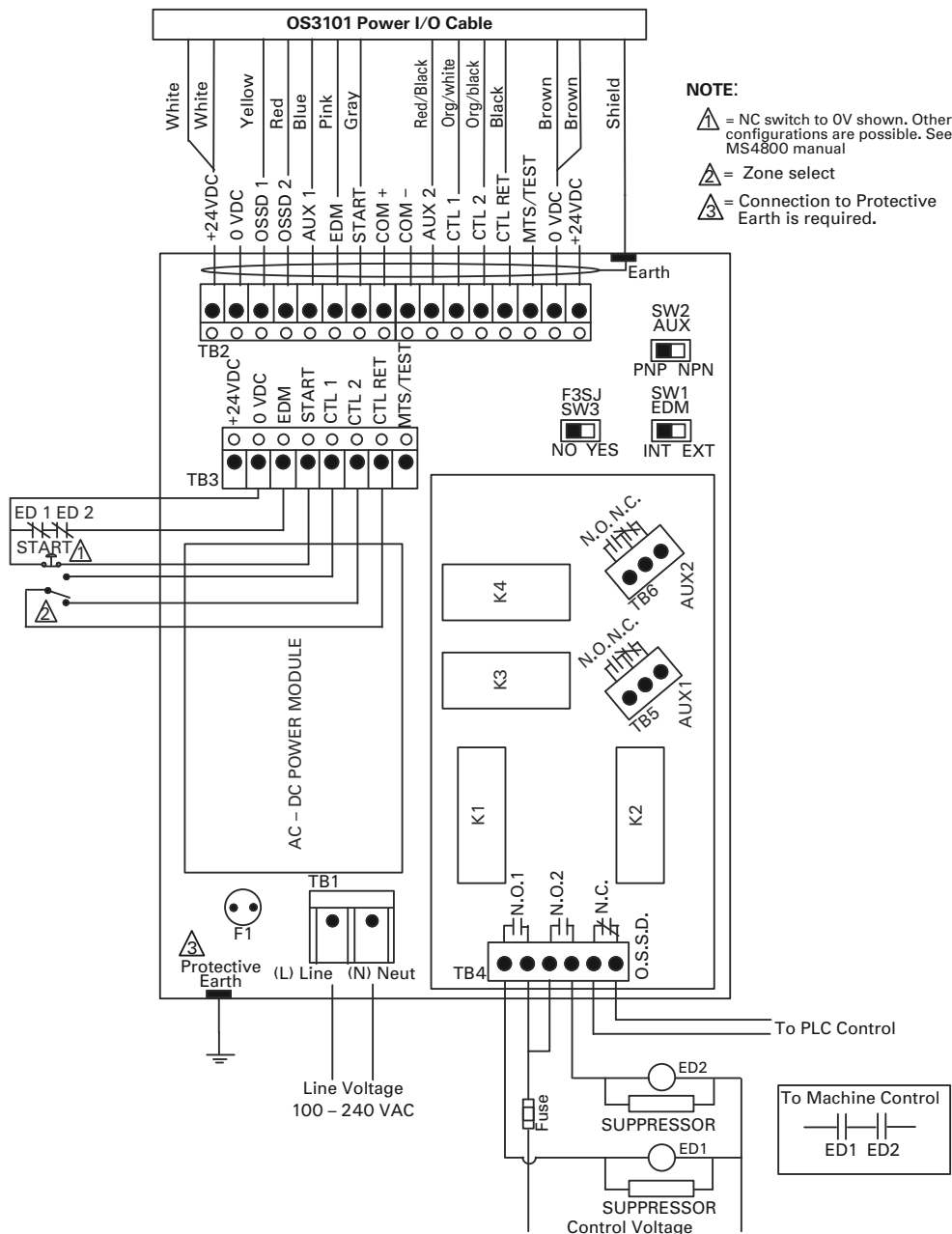


Figure 2-3 OS3101 Wiring Diagram

2.4 F3SJ LIGHT CURTAIN

There are three slide switches inside the RM-2AC-IP:

- EDM (SW1): select either internal (INT) or external (EXT). By default, this is set to INT. EDM must be enabled on the F3SJ.
- AUX (SW2): Check the F3SJ model number for an “N” or a “P”, where “N” designates NPN and “P” designates PNP. Set the auxiliary output slider switch in the RM-2AC-IP to the appropriate setting for your F3SJ system.
- F3SJ (SW3): Make sure this switch is set to “YES”.

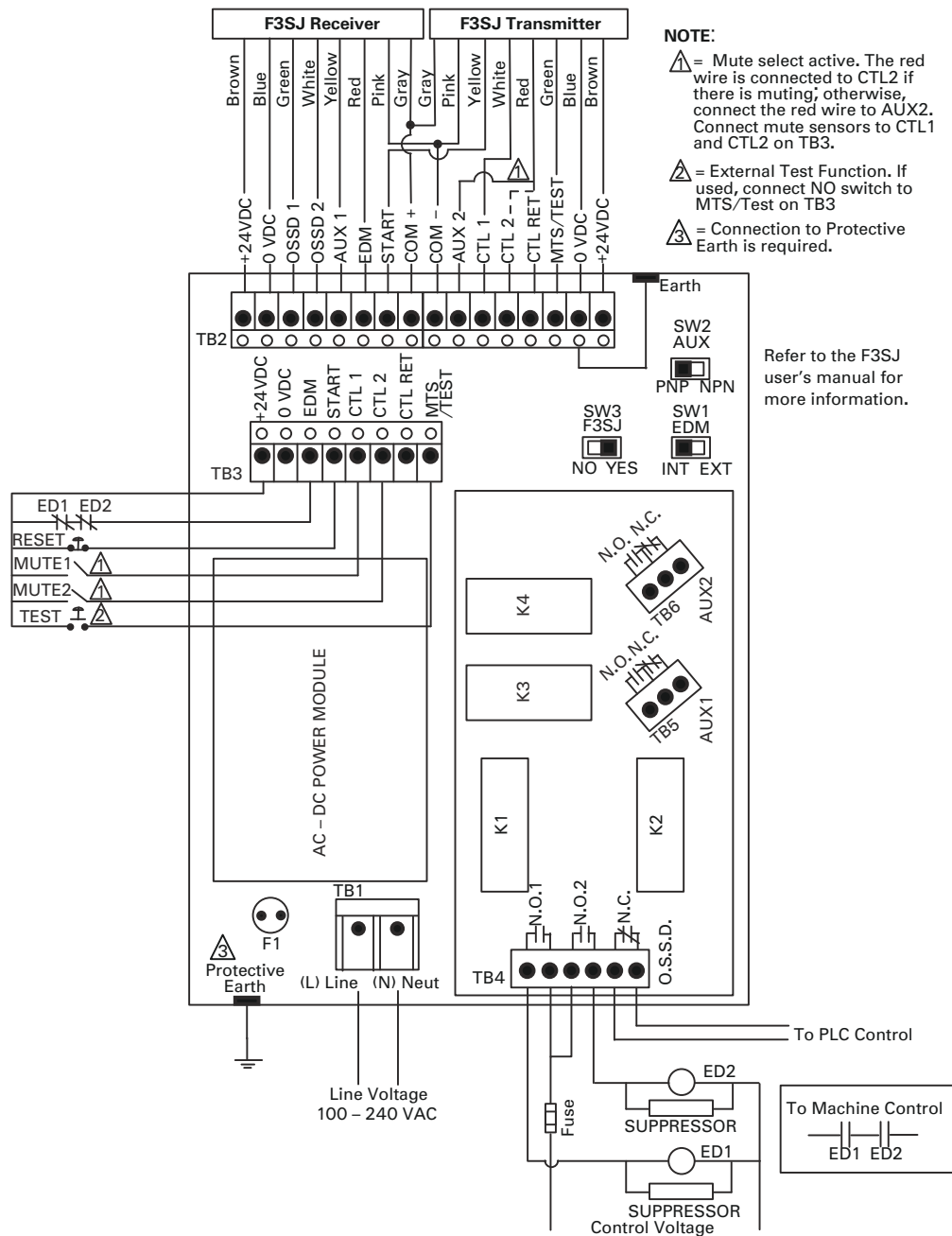


Figure 2-4 F3SJ Wiring Diagram

2.5 MINISAFE MS4600 / OF4600

There are three slide switches inside the RM-2AC-IP:

- EDM (SW1): select either internal (INT) or external (EXT). By default, this is set to INT. EDM must be enabled on the MS/OF4600.
- AUX (SW2): Refer to the model number of the MS4600/OF4600. On a MS4600, look for the designation of either “N” or “P” in the model number. An “N” refers to NPN and the “P” refers to PNP output.
- F3SJ (SW3): Make sure this switch is set to “NO”.

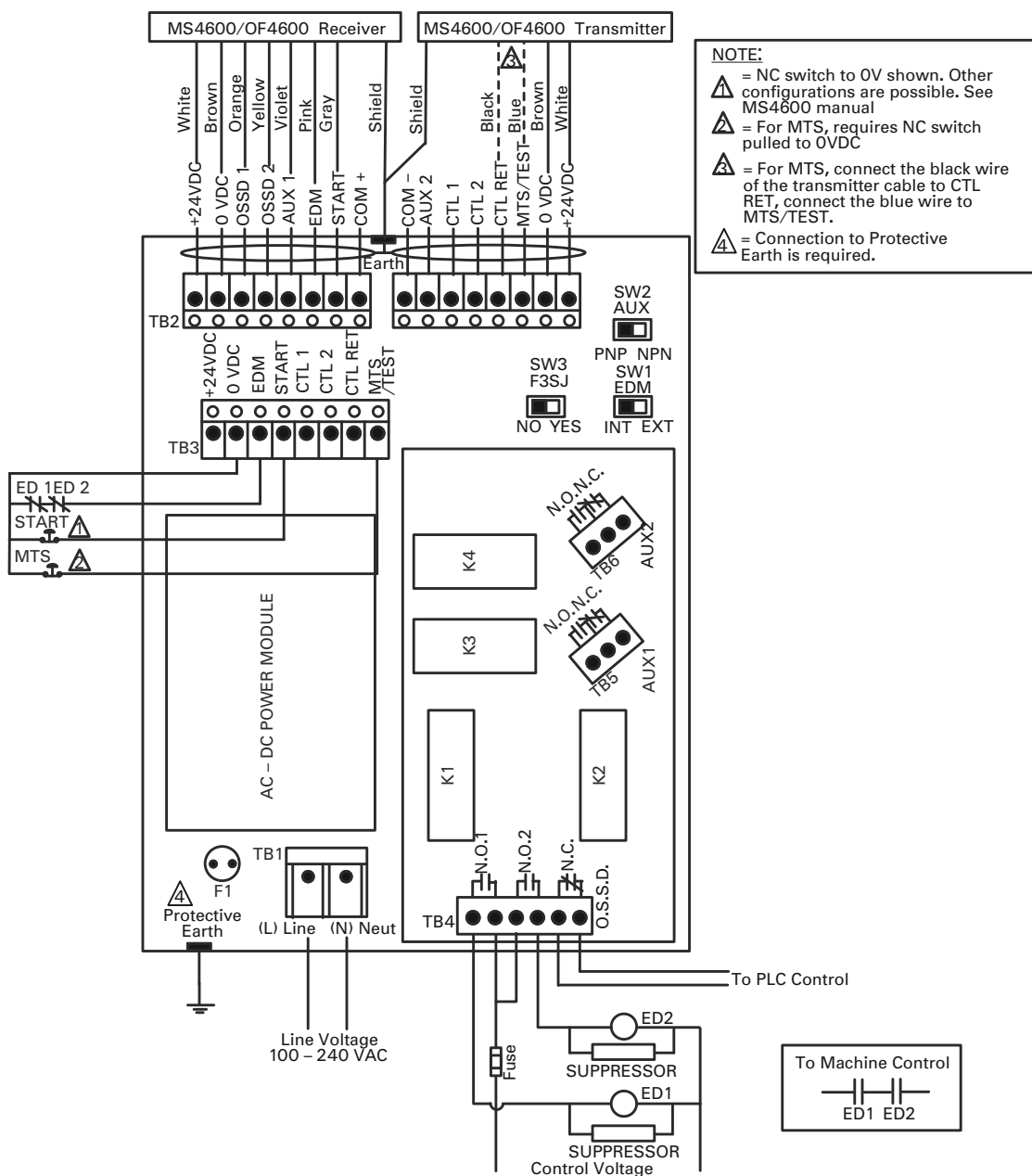


Figure 2-5 MS/OF4600 Wiring Diagram

2.6 PERIMETER ACCESS PA4600

There are three slide switches inside the RM-2AC-IP:

EDM (SW1): select either internal (INT) or external (EXT). By default, this is set to INT. EDM must be enabled on the PA4600.

AUX (SW2): Refer to the model number of the PA4600. On the PA4600 a “NP” refers to NPN and the “PN” refers to PNP output.

F3SJ (SW3): Make sure this switch is set to “NO”.

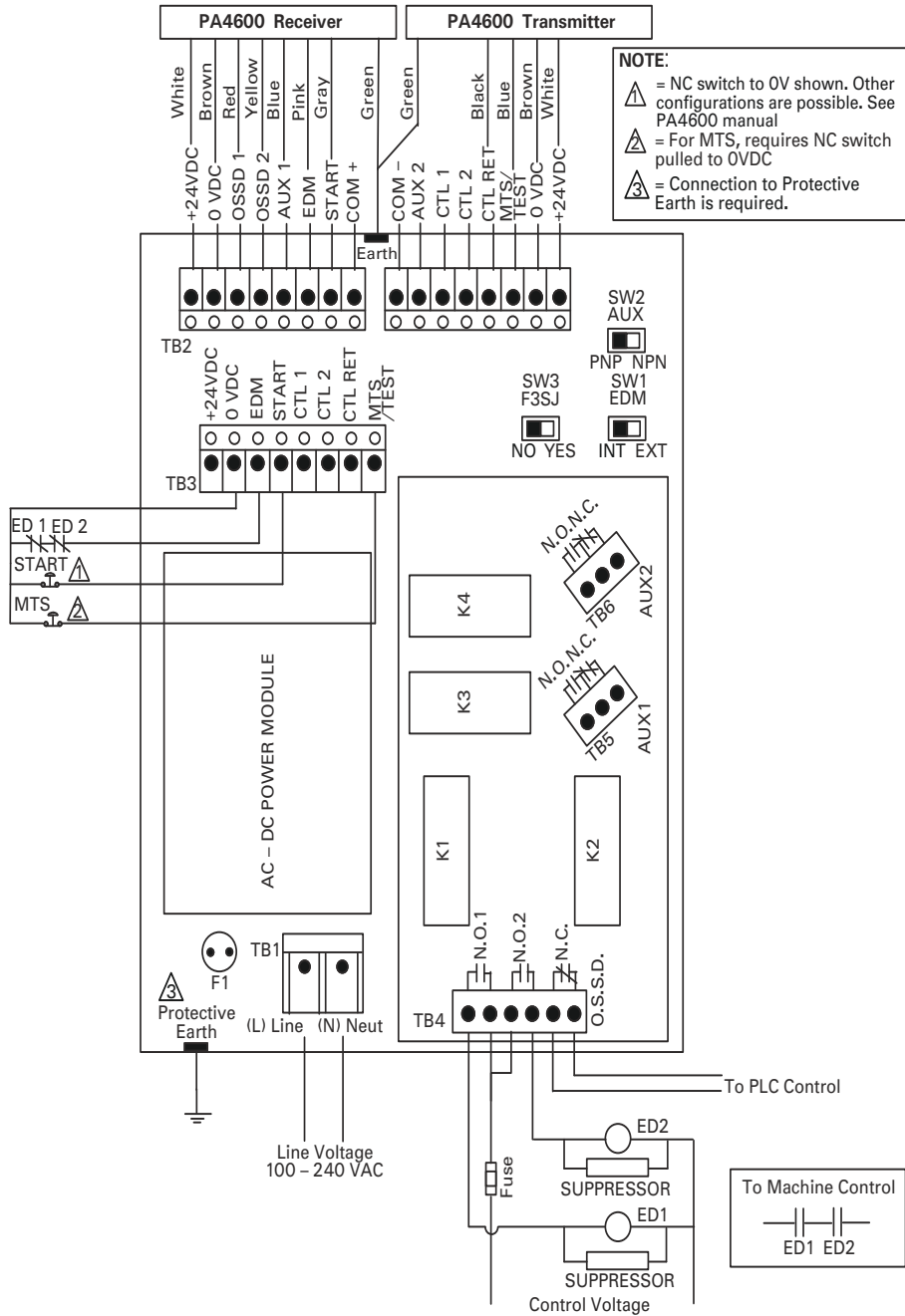


Figure 2-6 PA4600 Wiring Diagram

3 SPECIFICATIONS AND ADDITIONAL INFORMATION

3

3.1 SYSTEM SPECIFICATIONS

Performance	
Max. Response Time	10 ms NO, 20 ms NC plus maximum response time of safety device being used
Indicators	3 green LEDs: Power, OSSD1, OSSD2
Electrical	
Input Voltage	100 to 240 VAC, 50-60 Hz
Input Power	not more than 0.6/0.4A on 100 to 240 VAC
Internal Power Supply	24VDC \pm 5% output at 1A
Safety Relay Outputs	Two NO and one NC force-guided contacts rated: AC1: 250 VAC / 6A (resistive load) DC1: 30 VDC / 6A (resistive load) AC15: 240 VAC / 2A (inductive load) DC13: 24 VDC / 1A (inductive load)
Auxiliary (Non-Safety) Relay Outputs	Two NO/NC contacts. 250VAC / 5A, 30VDC / 5A (resistive load); 250VAC / 2A, 30VDC / 3A (inductive load)
EDM (MPCE)	The safety output of the RM-2AC-IP unit must be monitored by the light curtain via the EDM line
Cable Connections / Terminal Blocks / Wire Size	3 rows of removable terminal blocks; 3 non-removable terminal blocks; 14 AWG max. wire
Environmental	
Enclosure Rating	IP65
Operating Temperature	0 to 55 °C (32 ° to 131 °F)
Relative Humidity	95% maximum, non-condensing
Storage Temperature	- 25 °C to 75 °C
Vibration	10 Hz to 55 Hz, 1 octave/minute, 20 sweeps for each of 3 axes (per IEC 60068-2-6)
Shock	10 g, 16 ms, 1000 for each of 3 axes (per IEC 60068-2-29)
Mechanical	
Enclosure	Polyurethane painted steel
Mounting	0.30 in. (7.6 mm) diameter mounting holes
Dimensions	2.0 mm thick, 25 cm by 17 cm by 7 cm.
Conformity/Approvals	
	CE approved and conforms to IEC 61496-1, EN 954-1, EN 60204-1, EN 50178, and Type 4 safety category (only when used with an Omron STI Type 4 safety light curtain with EDM enabled).
	CSA approved
	SIL-3 (IEC 61508) when used with an Omron STI SIL-3 product
	RoHS compliant

Table 3-1 RM-2AC-IP Specifications

3.2 SPARE PARTS

Model Number	Description
SP-RM2AP-RLY	Relay Board
SP-TB3	Terminal blocks (auxiliary)
SP-TB6	Terminal blocks (safety)
FUSE-T1.25A-SB	Fuse (250 mA)
SP-CRG	Cable Strain Relief (for use with Omron STI cables)
SP-PLG	Gasketed Plastic Plug (for use with the OS3101)

3.3 DIMENSIONAL DRAWINGS

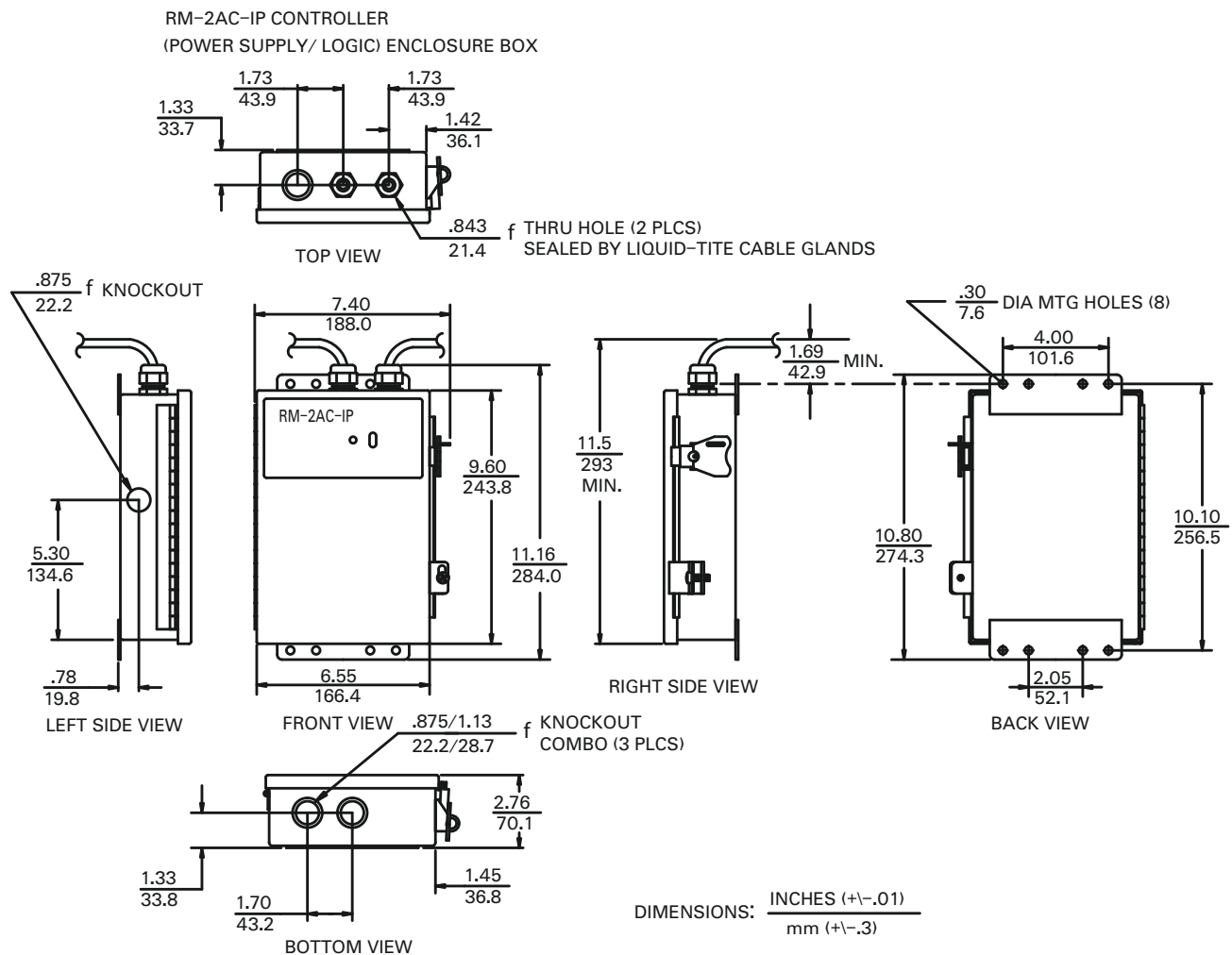


Figure 3-1 RM-2AC-IP Dimensional Drawings

4 GLOSSARY OF TERMS

EDM: External Device Monitoring, also known as MPCE (Machine Primary Control Element). This is the electrically powered element that directly controls the normal operation of a machine such that it is the last element (in time) to function when machine operation is to be initiated or arrested. Monitoring of light curtains to machine control interface is necessary to detect malfunction within interface that would prevent a stop signal from reaching the machine controller. EDM is required for control reliability.

MTS: Machine Test Signal. A feature which allows a machine controller to simulate an interruption of the sensing field.

Muting: A control reliable method of allowing the complete bypass or disabling of the light curtain's sensing field or stop signal to the protect machine during the non-hazardous(usually upstroke) portion of the machine cycle. Generally accomplished by either of two methods.

NC: Normally closed

NO: Normally open

OSSD: Output Signal Switching Device. The component of a safety light curtain connected to the machine control system which, when the light curtain is actuated during normal operation, responds by going to the off-state.

5 WARRANTY AND ADDITIONAL INFORMATION

5.1 WARRANTY

Omron STI warrants its products to be free from defects of material and workmanship and will, without charge, replace or repair any equipment found defective upon inspection at its factory, or other designated point provided the equipment has been returned, transportation prepaid, within one year from date of installation and not to exceed 18 months from date of factory shipment. Any software products are provided “AS IS” and “WITH ALL FAULTS” and Omron STI makes no warranty that the operation of software products will be uninterrupted or error free. THE FOREGOING WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES NOT EXPRESSLY SET FORTH HEREIN, WHETHER EXPRESSED OR IMPLIED BY OPERATION OF LAW OR OTHERWISE, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, NON-INFRINGEMENT OR FITNESS FOR A PARTICULAR PURPOSE. No representation or warranty, express or implied, made by any sales representative, distributor, or other agent or representative of Omron STI which is not specifically set forth herein shall be binding upon Omron STI. Omron STI shall not be liable for any incidental or consequential damages, losses or expenses directly or indirectly arising from the sale, handling, improper application or use of the goods or from any other cause relating thereto and Omron STI's liability hereunder, in any case, is expressly limited to the repair or replacement (at Omron STI's option) of goods.

Warranty is specifically at the factory. Any on-site service will be provided at the sole expense of the buyer at standard field service rates.

All associated equipment must be protected by properly rated electronic/electrical protection devices. Omron STI shall not be liable for any damage due to improper engineering or installation by the purchaser or third parties. Proper installation, operation and maintenance of the product becomes the responsibility of the user upon receipt of the product. Returns and allowances must be authorized by Omron STI in advance. Omron STI will assign a Returned Goods Authorization (RGA) number which must appear on all related papers and the outside of the shipping carton. All returns are subject to final review by Omron STI. Returns are subject to restocking charges as determined by Omron STI.

5.2 REPAIRS

Omron STI offers product repair service at our factory. If you need repairs made to any Omron STI product, contact our Customer Service Department at 1-800-556-6766.

5.3 RETURNS

Whenever you return a product to Omron STI (even if the product is in warranty) please contact our Customer Service Department (1-800-556-6766) and request a Returned Goods Authorization number (RGA). Goods that are returned for credit are subject to final review by Omron STI and are subject to restocking charges as determined by Omron STI.

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